

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-30. (Cancelled)

Claim 31. (Currently Amended) A passive sampling device for monitoring over a period of time micropollutants in an aquatic environment, which device comprises:

(a) a diffusion-limiting membrane ~~capable of being in contact~~ contactable in use with the ~~aqueous~~ aquatic environment ~~when the device is in use~~ to be monitored and adapted to allow rate-limited diffusion therethrough of the micropollutants; and,

(b) separated from the ~~aqueous~~ aquatic environment by the said membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants;

~~characterised in that~~ wherein the receiving phase ~~comprises an immobilised~~ is a ~~handleable and easily removable~~ unitary element comprising a solid phase material ~~supported by~~ immobilised by being bound in or to a hydrophobic solid support.

Claim 32. (Previously Presented) A device according to claim 31, wherein the solid support is in the form of a solid carrier for the solid phase material, which does not contain or retain water within its structure and can not exchange water with its

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

environment, whereby the solid support is not subject to loss of water and hence changes in dimension, due either to evaporation or osmotic efflux.

Claim 33. (Previously Presented) A device according to claim 31, wherein the diffusion-limiting membrane comprises a solid, hydrophobic material, which contains less than 1% water and/or is substantially non-porous, whereby the diffusion pathway comprises the solid polymer itself and not any water contained therein.

Claim 34. (Previously Presented) A device according to claim 31, wherein the diffusion-limiting membrane comprises polyethylene.

Claim 35. (Previously Presented) A device according to claim 31, suitable for monitoring polar, organic micropollutants, wherein the membrane is selected from polysulphone, polycarbonate, cellulose dialysis membrane, PTFE, PVDF and glass fibre.

Claim 36. (Currently Amended) A device according to claim 31, suitable for monitoring inorganic micropollutants,[[,]] wherein the membrane is selected from cellulose acetate, glass fibre membranes, nylon membranes and dialysis membranes.

Claim 37. (Previously Presented) A device according to claim 31, wherein the diffusion-limiting membrane is or is associated with a molecular charge selective material.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Claim 38. (Previously Presented) A device according to claim 37, wherein the molecular charge selective material is selected from poly(4-vinylpyridine), poly(2,6-dimethylphenol) and perfluorinated polymers having pendant sulphonic acid groups.

Claim 39. (Previously Presented) A device according to claim 31, wherein the thickness of the membrane, and therefore diffusion pathway, is in the range of from 0.02 to 0.15 mm.

Claim 40. (Previously Presented) A device according to claim 39, wherein the thickness of the membrane, and therefore diffusion pathway, is less than 0.1mm.

Claim 41. (Previously Presented) A device according to claim 31, wherein the thickness of the receiving phase is less than 1mm.

Claim 42. (Previously Presented) A device according to claim 31, wherein the solid receiving phase is in the form of a cartridge or disk.

Claim 43. (Previously Presented) A device according to claim 31, wherein the immobilised solid phase material comprises C₈ to C₁₈ chain length hydrocarbon groups bonded in a silica-based polymer.

Claim 44. (Previously Presented) A device according to claim 31, wherein the solid support comprises a matrix of fibres.

Claim 45. (Previously Presented) A device according to claim 44, wherein the matrix of fibres comprises hydrophobic fibres.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Claim 46. (Currently Amended) A device according to claim 31, wherein ~~the a~~ face of the membrane remote from the receiving phase is provided with netting or a mesh.

Claim 47. (Previously Presented) A unit for use as a passive sampling device, which unit comprises a device according to claim 31, and an inert body adapted to allow insertion therein and removal therefrom of the solid receiving phase and adapted to allow access from the aqueous environment of the micropollutants to the membrane.

Claim 48. (Previously Presented) A unit according to claim 47, provided with removable means for enabling water or conditioning liquid to be maintained in contact with the solid receiving phase between preparation and use of the device.

Claim 49. (Previously Presented) A unit according to claim 48, wherein the unit and/or removable means comprise(s) PTFE.

Claim 50. (Currently Amended) A passive sampling method for monitoring over a period of time the concentrations of micropollutants in a polluted environment, which method comprises:

(a) providing a receiving phase comprising an immobilised having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants, the receiving phase being a handleable and easily removable unitary element comprising a solid phase material for the micropollutants, which material is supported by a immobilised by being bound in or to a hydrophobic solid support;

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

- (b) providing a diffusion-limiting membrane adapted to allow rate-limited diffusion therethrough of the micropollutants and, in use, adapted to separate the said receiving phase from the said polluted environment;
- (c) bringing the membrane into contact with the said polluted environment for a sufficient period of time to allow the micropollutants to collect in the immobilised solid phase material;
- (d) removing the solid the said receiving phase from the said polluted environment; and
- (e) analysing the micropollutants accumulated in the said receiving phase.

Claim 51. (Previously Presented) A method according to claim 50, wherein, in step (d), the solid receiving phase is removed from the environment and separated from the device.

Claim 52. (Previously Presented) A method according to claim 50, wherein the step (e) comprises applying extraction solvent to the receiving phase, whereby the analytes are removed from the receiving phase.

Claim 53. (Previously Presented) A method according to claim 52, wherein the extraction solvent is applied to one face of the receiving phase and is collected, containing the micropollutant analyte(s), at the opposite face thereof.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Claim 54. (Previously Presented) A method according to claim 50, which further comprises pre-treating the receiving phase by coating or impregnating it with the diffusion-limiting membrane; by conditioning it with a conditioner; or by loading it with internal standard; or any combination thereof.

Claim 55. (Previously Presented) A method according to claim 50, which further comprises pre-treating the receiving phase by treating it with an agent adapted to complex, chelate or otherwise assist the receiving phase to receive and retain the chosen micropollutant.

Claim 56. (Previously Presented) A method according to claim 50, which further comprises pre-treating the receiving phase by coating or impregnating it with a photometric agent selected from bathocuproine, methylthymol blue, xylenol orange, glycine cresol red, binchinonic acid and 1,5-diphenyl carbohydrazide.

Claim 57. (Previously Presented) A method according to claim 50, which further comprises pre-treating the receiving phase by coating or impregnating it with an internal standard comprising an isotopically-labelled compound, capable of, during deployment of the device, diffusing from the receiving phase through the diffusion-limiting membrane and into the aquatic environment at a known and controlled rate.

Claim 58. (Currently Amended) A passive sampling device for monitoring over a period of time the concentrations of non-polar, organic micropollutants in an aquatic environment, which device comprises:

(a) a diffusion-limiting membrane ~~capable of being in contact~~ contactable in use with the aqueous aquatic environment ~~when the device is in use~~ to be monitored and adapted to allow rate-limited diffusion therethrough of the micropollutants; and[.]

(b) separated from the aqueous aquatic environment by the said membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants;

~~characterised in that~~ wherein the receiving phase ~~comprises an immobilised~~ is a handleable and easily removable unitary element comprising a solid phase material immobilised by being bound in or to a hydrophobic solid support, and the diffusion-limiting membrane comprises a solid, hydrophobic polymeric material capable of determining the rate of diffusion of the micropollutants therethrough.

Claim 59. (Cancelled)

Claim 60. (Currently Amended) A device according to claim 59 58, wherein the solid support is in the form of a solid carrier for the solid phase material, which does not contain or retain water within its structure and can not exchange water with its environment, whereby the solid support is not subject to loss of water and hence changes in dimension, due either to evaporation or osmotic efflux.

Claim 61. (Previously Presented) A device according to claim 58, wherein the diffusion-limiting membrane comprises a solid, hydrophobic material, which contains

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

less than 1% water and/or is substantially non-porous, whereby the diffusion pathway comprises the solid polymer itself and not any water contained therein.

Claim 62. (Previously Presented) A device according to claim 58, wherein the diffusion-limiting membrane comprises polyethylene.

Claim 63. (Previously Presented) A device according to claim 58, suitable for monitoring polar, organic micropollutants, wherein the membrane is selected from polysulphone, polycarbonate, cellulose dialysis membrane, PTFE, PVDF and glass fibre.

Claim 64. (Previously Presented) A device according to claim 58, suitable for monitoring inorganic micropollutants, wherein the membrane is selected from cellulose acetate, glass fibre membranes, nylon membranes and dialysis membranes.

Claim 65. (Currently Amended) A device according to claim 58, wherein the diffusion-limiting membrane is or is associated with a molecular charge selective material.

Claim 66. (Previously Presented) A device according to claim 65, wherein the molecular charge selective material is selected from poly(4-vinylpyridine), poly(2,6-dimethylphenol) and perfluorinated polymers having pendant sulphonic acid groups.

Claim 67. (Previously Presented) A device according to claim 58, wherein the thickness of the membrane, and therefore diffusion pathway, is in the range of from 0.02 to 0.15 mm.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Claim 68. (Previously Presented) A device according to claim 67, wherein the thickness of the membrane, and therefore diffusion pathway, is less than 0.1mm.

Claim 69. (Previously Presented) A device according to claim 58, wherein the thickness of the receiving phase is less than 1mm.

Claim 70. (Previously Presented) A device according to claim 58, wherein the solid receiving phase is in the form of a cartridge or disk.

Claim 71. (Previously Presented) A device according to claim 58, wherein the immobilised solid phase material comprises C₈ to C₁₈ chain length hydrocarbon groups bonded in a silica-based polymer.

Claim 72. (Previously Presented) A device according to claim 59, wherein the solid support comprises a matrix of fibres.

Claim 73. (Previously Presented) A device according to claim 72, wherein the matrix of fibres comprises hydrophobic fibres.

Claim 74. (Currently Amended) A device according to claim 58, wherein the a face of the membrane remote from the receiving phase is provided with netting or a mesh.

Claim 75. (Previously Presented) A unit for use as a passive sampling device, which unit comprises a device according to claim 58, and an inert body adapted to allow

insertion therein and removal therefrom of the solid receiving phase and adapted to allow access from the aqueous environment of the micropollutants to the membrane.

Claim 76. (Previously Presented) A unit according to claim 75, provided with removable means for enabling water or conditioning liquid to be maintained in contact with the solid receiving phase between preparation and use of the device.

Claim 77. (Previously Presented) A unit according to claim 75, wherein the unit and/or removable means comprise(s) PTFE.

Claim 78. (Currently Amended) A passive sampling device for monitoring over a period of time the concentrations of micropollutants in an aquatic environment, which device comprises:

(a) a diffusion-limiting membrane ~~capable of being in contact~~ contactable in use with the aqueous aquatic environment ~~when the device is in use to be monitored~~ and adapted to allow rate-limited diffusion therethrough of the micropollutants; and[[],]

(b) separated from the aqueous aquatic environment by the said membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants;

~~characterised in that~~ wherein the receiving phase ~~comprises an immobilised~~ is a handleable and easily removable unitary element comprising a solid phase material immobilised by being bound in or to a hydrophobic solid support, and the diffusion-limiting membrane comprises pores traversing the membrane in a direction substantially

at right angles to the plane of the membrane and having a diameter in the range of from 0.1 to 10 μm .

Claim 79. (Cancelled)

Claim 80. (Currently Amended) A device according to claim 79 78, wherein the solid support is in the form of a solid carrier for the solid phase material, which does not contain or retain water within its structure and can not exchange water with its environment, whereby the solid support is not subject to loss of water and hence changes in dimension, due either to evaporation or osmotic efflux.

Claim 81. (Previously Presented) A device according to claim 78, wherein the diffusion-limiting membrane comprises a solid, hydrophobic material, which contains less than 1% water and/or is substantially non-porous, whereby the diffusion pathway comprises the solid polymer itself and not any water contained therein.

Claim 82. (Previously Presented) A device according to claim 78, suitable for monitoring polar, organic micropollutants, wherein the membrane is selected from polysulphone, polycarbonate, cellulose dialysis membrane, PTFE, PVDF and glass fibre.

Claim 83. (Previously Presented) A device according to claim 78, suitable for monitoring inorganic micropollutants, wherein the membrane is selected from cellulose acetate, glass fibre membranes, nylon membranes and dialysis membranes.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Claim 84. (Previously Presented) A device according to claim 78, wherein the diffusion-limiting membrane is or is associated with a molecular charge selective material.

Claim 85. (Previously Presented) A device according to claim 84, wherein the molecular charge selective material is selected from poly(4-vinylpyridine), poly(2,6-dimethylphenol) and perfluorinated polymers having pendant sulphonic acid groups.

Claim 86. (Previously Presented) A device according to claim 78, wherein the thickness of the membrane, and therefore diffusion pathway, is in the range of from 0.02 to 0.15 mm.

Claim 87. (Previously Presented) A device according to claim 86, wherein the thickness of the membrane, and therefore diffusion pathway, is less than 0.1mm.

Claim 88. (Previously Presented) A device according to claim 78, wherein the thickness of the receiving phase is less than 1mm.

Claim 89. (Previously Presented) A device according to claim 78, wherein the solid receiving phase is in the form of a cartridge or disk.

Claim 90. (Previously Presented) A device according to claim 78, wherein the immobilised solid phase material comprises C₈ to C₁₈ chain length hydrocarbon groups bonded in a silica-based polymer.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Claim 91. (Previously Presented) A device according to claim 79, wherein the solid support comprises a matrix of fibres.

Claim 92. (Previously Presented) A device according to claim 91, wherein the matrix of fibres comprises hydrophobic fibres.

Claim 93. (Currently Amended) A device according to claim 78, wherein the a face of the membrane remote from the receiving phase is provided with netting or a mesh.

Claim 94. (Previously Presented) A unit for use as a passive sampling device, which unit comprises a device according to claim 78, and an inert body adapted to allow insertion therein and removal therefrom of the solid receiving phase and adapted to allow access from the aqueous environment of the micropollutants to the membrane.

Claim 95. (Previously Presented) A unit according to claim 94, provided with removable means for enabling water or conditioning liquid to be maintained in contact with the solid receiving phase between preparation and use of the device.

Claim 96. (Previously Presented) A unit according to claim 95, wherein the unit and/or removable means comprise(s) PTFE.

Claim 97. (New) A device for monitoring micropollutants in an aquatic environment, which device comprises:

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

- (a) a diffusion-limiting membrane capable of being in contact with the aqueous environment when the device is in use and adapted to allow rate-limited diffusion therethrough of the micropollutants; and
- (b) separated from the aqueous environment by the membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants;

wherein the receiving phase comprises an immobilised solid phase material supported by a solid support and wherein the diffusion-limiting membrane comprises polyethylene.

Claim 98. (New) A device for monitoring micropollutants in an aquatic environment, which device comprises:

- (a) a diffusion-limiting membrane capable of being in contact with the aqueous environment when the device is in use and adapted to allow rate-limited diffusion therethrough of the micropollutants; and
- (b) separated from the aqueous environment by the membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants;

wherein the receiving phase comprises an immobilised solid phase material comprising C₈ to C₁₈ chain length hydrocarbon groups bonded in a silica-based polymer.

Claim 99. (New) A device suitable for monitoring inorganic micropollutants in an aquatic environment, which device comprises:

- (a) a diffusion-limiting membrane capable of being in contact with the aqueous environment when the device is in use and adapted to allow rate-limited diffusion therethrough of the micropollutants; and
- (b) separated from the aqueous environment by the membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants;

wherein the receiving phase comprises an immobilised solid phase material supported by a solid support and wherein the membrane is selected from cellulose acetate, glass fibre membranes, nylon membranes and dialysis membranes.

Claim 100. (New) A device for monitoring micropollutants in an aquatic environment, which device comprises:

- (a) a diffusion-limiting membrane capable of being in contact with the aqueous environment when the device is in use and adapted to allow rate-limited diffusion therethrough of the micropollutants; and
- (b) separated from the aqueous environment by the membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants;

wherein the receiving phase comprises an immobilised solid phase material supported by a solid support and wherein the diffusion-limiting membrane is or is associated with a molecular charge selective material selected from poly(4-vinylpyridine), poly(2,6-dimethylphenol) and perfluorinated polymers having pendant sulphonic acid groups.

Claim 101. (New) A method for monitoring micropollutants in a polluted environment, which method comprises:

- (a) providing a receiving phase comprising an immobilised solid phase material for the micropollutants, which material is supported by a solid support;
- (b) providing a diffusion-limiting membrane adapted to allow rate-limited diffusion therethrough of the micropollutants and, in use, adapted to separate the receiving phase from the polluted environment;
- (c) bringing the membrane into contact with the polluted environment for a sufficient period of time to allow the micropollutants to collect in the immobilised solid phase material;
- (d) removing the solid receiving phase from the environment; and
- (e) analysing the micropollutants accumulated in the receiving phase

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

wherein the step (e) comprises applying extraction solvent to the receiving phase, whereby the analytes are removed from the receiving phase.

Claim 102. (New) A method according to claim 101, wherein the extraction solvent is applied to one face of the receiving phase and is collected, containing the micropollutant analyte(s), at the opposite face thereof.

Claim 103. (New) A method for monitoring micropollutants in a polluted environment, which method comprises:

- (a) providing a receiving phase comprising an immobilised solid phase material for the micropollutants, which material is supported by a solid support;
- (b) providing a diffusion-limiting membrane adapted to allow rate-limited diffusion therethrough of the micropollutants and, in use, adapted to separate the receiving phase from the polluted environment;
- (c) bringing the membrane into contact with the polluted environment for a sufficient period of time to allow the micropollutants to collect in the immobilised solid phase material;
- (d) removing the solid receiving phase from the environment; and
- (e) analysing the micropollutants accumulated in the receiving phase,

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

which further comprises pre-treating the receiving phase by coating or impregnating it with the diffusion-limiting membrane; by conditioning it with a conditioner; or by loading it with internal standard; or any combination thereof.

Claim 104. (New) A method for monitoring micropollutants in a polluted environment, which method comprises:

- (a) providing a receiving phase comprising an immobilised solid phase material for the micropollutants, which material is supported by a solid support;
- (b) providing a diffusion-limiting membrane adapted to allow rate-limited diffusion therethrough of the micropollutants and, in use, adapted to separate the receiving phase from the polluted environment;
- (c) bringing the membrane into contact with the polluted environment for a sufficient period of time to allow the micropollutants to collect in the immobilised solid phase material;
- (d) removing the solid receiving phase from the environment; and
- (e) analysing the micropollutants accumulated in the receiving phase,

which further comprises pre-treating the receiving phase by treating it with an agent adapted to complex, chelate or otherwise assist the receiving phase to receive and retain the chosen micropollutant.

Claim 105. (New) A method for monitoring micropollutants in a polluted environment, which method comprises:

- (a) providing a receiving phase comprising an immobilised solid phase material for the micropollutants, which material is supported by a solid support;
- (b) providing a diffusion-limiting membrane adapted to allow rate-limited diffusion therethrough of the micropollutants and, in use, adapted to separate the receiving phase from the polluted environment;
- (c) bringing the membrane into contact with the polluted environment for a sufficient period of time to allow the micropollutants to collect in the immobilised solid phase material;
- (d) removing the solid receiving phase from the environment; and
- (e) analysing the micropollutants accumulated in the receiving phase,

which further comprises pre-treating the receiving phase by coating or impregnating it with a photometric agent selected from bathocuproine, methylthymol blue, xylanol orange, glycine cresol red, binchinonic acid and 1,5-diphenyl carbohydrazide.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Claim 106. (New) A method for monitoring micropollutants in a polluted environment, which method comprises:

- (a) providing a receiving phase comprising an immobilised solid phase material for the micropollutants, which material is supported by a solid support;
- (b) providing a diffusion-limiting membrane adapted to allow rate-limited diffusion therethrough of the micropollutants and, in use, adapted to separate the receiving phase from the polluted environment;
- (c) bringing the membrane into contact with the polluted environment for a sufficient period of time to allow the micropollutants to collect in the immobilised solid phase material;
- (d) removing the solid receiving phase from the environment; and
- (e) analysing the micropollutants accumulated in the receiving phase,

which further comprises pre-treating the receiving phase by coating or impregnating it with an internal standard comprising an isotopically-labelled compound, capable of, during deployment of the device, diffusing from the receiving phase through the diffusion-limiting membrane and into the aquatic environment at a known and controlled rate.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Claim 107. (New) A device for monitoring non-polar, organic micropollutants in an aquatic environment, which device comprises:

- (a) a diffusion-limiting membrane capable of being in contact with the aqueous environment when the device is in use and adapted to allow rate-limited diffusion therethrough of the micropollutants; and,
- (b) separated from the aqueous environment by the membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants

wherein the receiving phase comprises an immobilised solid phase material and the diffusion-limiting membrane comprises a solid, hydrophobic polymeric material capable of determining rate of diffusion of the micropollutants therethrough and wherein the diffusion-limiting membrane comprises polyethylene.

Claim 108. (New) A device suitable for monitoring inorganic micropollutants in an aquatic environment, which device comprises:

- (a) a diffusion-limiting membrane capable of being in contact with the aqueous environment when the device is in use and adapted to allow rate-limited diffusion therethrough of the micropollutants; and,
- (b) separated from the aqueous environment by the membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

wherein the receiving phase comprises an immobilised solid phase material and the diffusion-limiting membrane comprises a solid, hydrophobic polymeric material capable of determining rate of diffusion of the micropollutants therethrough, said membrane being selected from cellulose acetate, glass fibre membranes, nylon membranes and dialysis membranes.

Claim 109. (New) A device for monitoring non-polar, organic micropollutants in an aquatic environment, which device comprises:

- (a) a diffusion-limiting membrane capable of being in contact with the aqueous environment when the device is in use and adapted to allow rate-limited diffusion therethrough of the micropollutants; and,
- (b) separated from the aqueous environment by the membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants

wherein the receiving phase comprises an immobilised solid phase material and the diffusion-limiting membrane comprises a solid, hydrophobic polymeric material capable of determining rate of diffusion of the micropollutants therethrough which is or is associated with a molecular charge selective material selected from poly(4-vinylpyridine), poly(2,6-dimethylphenol) and perfluorinated polymers having pendant sulphonic acid groups.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Claim 110. (New) A device for monitoring non-polar, organic micropollutants in an aquatic environment, which device comprises:

- (a) a diffusion-limiting membrane capable of being in contact with the aqueous environment when the device is in use and adapted to allow rate-limited diffusion therethrough of the micropollutants; and,
- (b) separated from the aqueous environment by the membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants

wherein the receiving phase comprises an immobilised solid phase material comprising C₈ to C₁₈ chain length hydrocarbon groups bonded in a silica-based polymer and the diffusion-limiting membrane comprises a solid, hydrophobic polymeric material capable of determining rate of diffusion of the micropollutants therethrough.

Claim 111. (New) A device suitable for monitoring inorganic micropollutants in an aquatic environment, which device comprises:

- (a) a diffusion-limiting membrane capable of being in contact with the aqueous environment when the device is in use and adapted to allow rate-limited diffusion therethrough of the micropollutants; and,
- (b) separated from the aqueous environment by the membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants;

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

wherein the receiving phase comprises an immobilised solid phase material, and the diffusion-limiting membrane comprises pores traversing the membrane in a direction substantially at right angles to the plane of the membrane and having a diameter in the range of from 0.1 to 10 μm , and wherein the membrane is selected from cellulose acetate, glass fibre membranes, nylon membranes and dialysis membranes.

Claim 112. (New) A device suitable for monitoring inorganic micropollutants in an aquatic environment, which device comprises:

- (a) a diffusion-limiting membrane capable of being in contact with the aqueous environment when the device is in use and adapted to allow rate-limited diffusion therethrough of the micropollutants; and,
- (b) separated from the aqueous environment by the membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants;

wherein the receiving phase comprises an immobilised solid phase material, and the diffusion-limiting membrane comprises pores traversing the membrane in a direction substantially at right angles to the plane of the membrane and having a diameter in the range of from 0.1 to 10 μm , and wherein the diffusion-limiting membrane is or is associated with a molecular charge selective material selected from poly(4-vinylpyridine), poly(2,6-dimethylphenol) and perfluorinated polymers having pendant sulphonic acid groups.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Claim 113. (New) A device suitable for monitoring inorganic micropollutants in an aquatic environment, which device comprises:

- (a) a diffusion-limiting membrane capable of being in contact with the aqueous environment when the device is in use and adapted to allow rate-limited diffusion therethrough of the micropollutants; and,
- (b) separated from the aqueous environment by the membrane, a receiving phase having a sufficiently high affinity for the micropollutants for receiving and retaining the micropollutants;

wherein the receiving phase comprises an immobilised solid phase material comprising C₈ to C₁₈ chain length hydrocarbon groups bonded in a silica-based polymer, and the diffusion-limiting membrane comprises pores traversing the membrane in a direction substantially at right angles to the plane of the membrane and having a diameter in the range of from 0.1 to 10 µm.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com